

BACKGROUND INFORMATION

Earth's Atmosphere

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- A. Troposphere: The layer closest to Earth reaches a height of about 18 km. Temperatures drop 6.5 degrees Celsius for every kilometer. Almost all weather occurs here. Jets fly here.
- B. Stratosphere: This layer extends from 18 km to 50 km in height. The jet stream winds blow eastward horizontally around the Earth in the lower portion of this layer. Temperatures are about -60 degrees Celsius. Ozone can be found here. Weather balloons fly here and so do some jets.
- C. Mesosphere: Extending from 50 km to 80km the temperatures in this layer drop to about -100 degrees Celsius. Meteors burn up in this area due to friction between the meteor and the atmosphere.
- D. Thermosphere: The area from 80km to about 500km contains thin air and very low density. Temperatures can reach 2000 degrees Celsius. The Northern Lights are found in the lower regions. The ionosphere is found in the upper limits. Space Shuttles fly here.
- E. Exosphere: Here the atmosphere merges into space. Air is so thin that one particle can travel great distances without hitting another particle.

Other Facts: *Earth's atmosphere is 20% Oxygen and 80% Nitrogen. Air becomes thinner and less dense as altitude increases. At an elevation of 8856 miles climbers on the summit of Mt. Everest experience shortness of breath due to fewer Oxygen atoms.

*When exposed to very low pressures, body fluids vaporize,

and bubbles form in the bloodstream and tissues. An astronaut in space without a protective suit would end up “freeze-dried”

- *Humans have a narrow thermal comfort range. We cannot stray far above or below 37 degrees Celsius. Temperatures in space can vary from -100 degrees Celsius to over 120 degrees C.
- *Tiny particles called meteoroids travel at very high velocities and can easily penetrate human skin.
- *Radiation exposure can be harmful to humans. Exposure can result in skin damage, cancers, birth defects, and death.